

PAT-NO: JP363071680A
DOCUMENT-IDENTIFIER: JP 63071680 A
TITLE: ION DETECTOR
PUBN-DATE: April 1, 1988

INVENTOR-INFORMATION:
NAME

SHICHI, HIROYASU

TAMURA, HIFUMI

ASSIGNEE-INFORMATION:
NAME
COUNTRY
HITACHI LTD
N/A

APPL-NO: JP61216035
APPL-DATE: September 16, 1986

INT-CL (IPC): G01T001/28, H01J037/244 ,
H01J049/06

US-CL-CURRENT: 250/309

C

09/24/2004, EAST Version: 1.4.1

Best Available Copy

ABSTRACT:

PURPOSE: To improve detection limit and sensitivity and to enable detection of both positive and negative ions with the same gain by disposing a meshed electrode between an ion-electron converter and scintillator and forming a curved shape to focus secondary electrons to a scintillator surface by using the surface of the meshed electrode and the surface of the scintillator.

detect positive & negative ions, meshed electrode

focus electron

CONSTITUTION: The surfaces of the meshed electrode 2 and the scintillator 4 are shaped to the spherical surface having the same center so as to focus the secondary electrons generated by the ion-electron converter 1 onto an aluminum film 3. Ions 9 past a mass spectrometer 8 are converted to the secondary electrons 7 by the ion-electron converter 1 and are passed through the meshed electrode 2; thereafter, the ions arrive at the scintillator 4, by which the ions are converted to light. The light is amplified by a photomultiplier 5 and is detected. The value which is nearly 100% is obtainable for the count efficiency of the ions to be detected in the case of using a pulse counting system to count the number of pulses by converting the output of the photomultiplier 5 to voltage pulses. The

focus secondary electrons

09/24/2004, EAST Version: 1.4.1

detection limit of the detector is
thereby improved to a greater extent.

COPYRIGHT: (C)1988,JPO&Japio

09/24/2004, EAST Version: 1.4.1

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 63-071680

(43)Date of publication of application : 01.04.1988

(51)Int.Cl.

G01T 1/28

H01J 37/244

H01J 49/06

(21)Application number : 61-216035

(71)Applicant : HITACHI LTD

(22)Date of filing : 16.09.1986

(72)Inventor : SHICHI HIROYASU

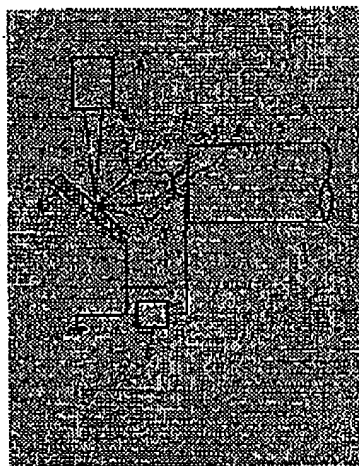
TAMURA HIFUMI

(54) ION DETECTOR

(57)Abstract:

PURPOSE: To improve detection limit and sensitivity and to enable detection of both positive and negative ions with the same gain by disposing a meshed electrode between an ion-electron converter and scintillator and forming a curved shape to focus secondary electrons to a scintillator surface by using the surface of the meshed electrode and the surface of the scintillator.

CONSTITUTION: The surfaces of the meshed electrode 2 and the scintillator 4 are shaped to the spherical surface having the same center so as to focus the secondary electrons generated by the ion-electron converter 1 unto an aluminum film 3. Ions 9 past a mass spectrometer 8 are converted to the secondary electrons 7 by the ion-electron converter 1 and are passed through the meshed electrode 2; thereafter, the ions arrive at the scintillator 4, by which the ions are converted to light. The light is amplified by a photomultiplier 5 and is detected. The value which is nearly 100% is obtainable for the count efficiency of the ions to be detected in the case of using a pulse counting system to count the number of pulses by converting the output of the photomultiplier 5 to voltage pulses. The detection limit of the detector is thereby improved to a greater extent.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

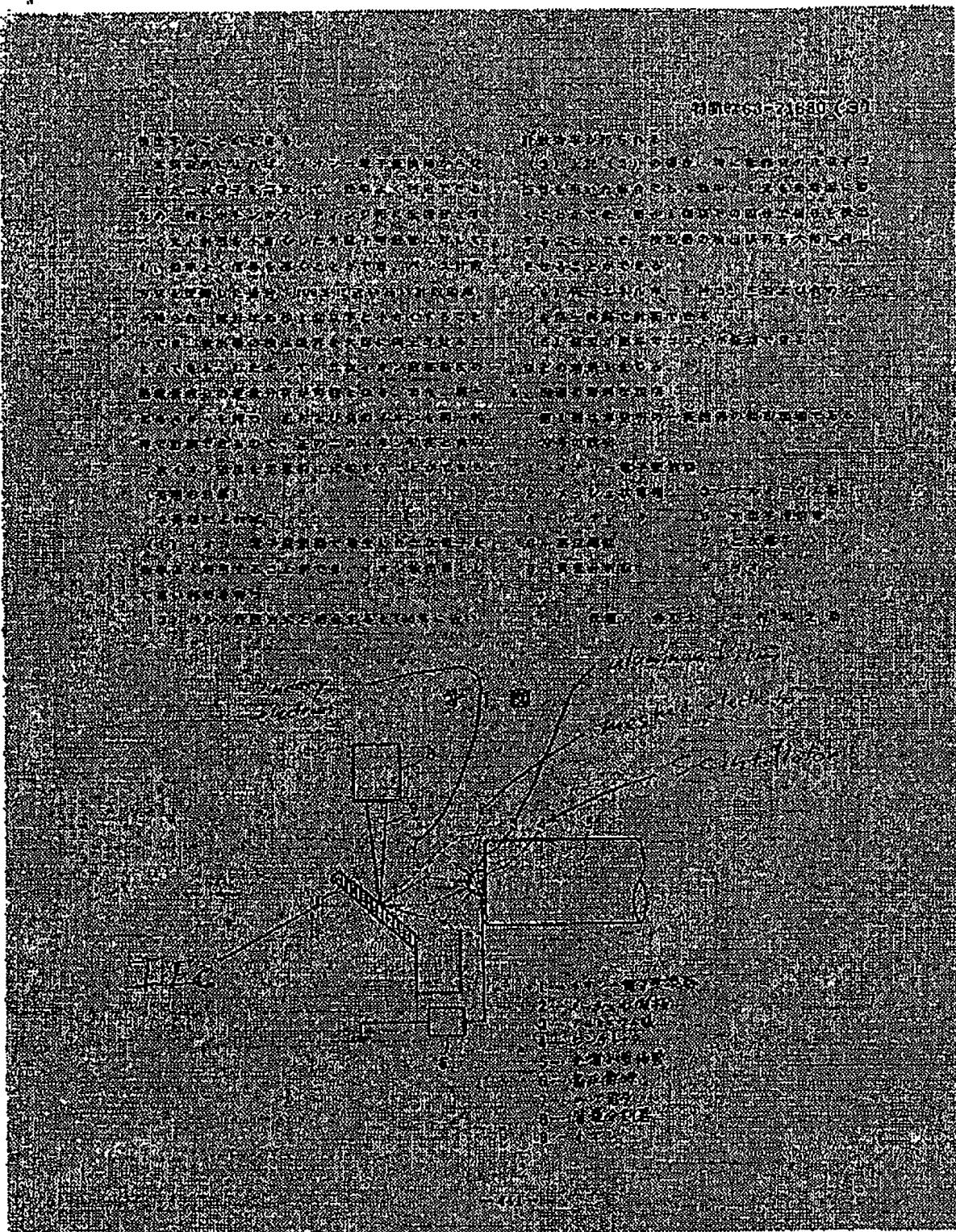
[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C): 1998,2003 Japan Patent Office



**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ ~~BLACK BORDERS~~
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.